USER GUIDE FOR NETmc MARINE ***videoPWR***

Camera / lamp controller units

Rev 3.2 July 2010

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1. Introduction

NETmc Marine videoPWR camera / lamp controller units have been supplied in 2 separate models:

- a ***videoPWR*peli** which is fitted into a Pelicase for ease of transportation, and is used to control one diver camera and lamp system

- a single/dual channel 1U **rackmount *videoPWR*** which provides control of up to 2 separate diver camera and lamp systems. The dual channel version has 100% replication for each diver system, with separate mains inputs, switches and umbilical output sockets.
  For an additional cost video enhancement technology can be fitted into the unit.

VideoPWR camera/lamp controllers are designed to work with our customer's own camera/lamps as requested:

- Where a Souriau umibilical connector is fitted (see Appendix 2), the ***videoPWR*** unit has been designed specifically for use with Novasub underwater cameras parts CAMSS2.3TP and CAMSS2.4C, and Novasub LED lights part LUX6LSS1.4-12.

- If a different or no connector is fitted please contact us to find out which camera/lamps systems the ***videoPWR*** is designed to work with.

2. *videoPWRpeli*

2.1 Hardware Description and Connections

When switching on, the dimmer control knob should always be set at its minimum. This prevents damage to any connected lamp and prevents inrush surges which might happen if no lamp is connected - which may blow fuses.

2.2 Electrical:

The units operate from 90 to 260 VAC input.

Lamp output 0-24v DC variable.

Camera output typically 24v DC

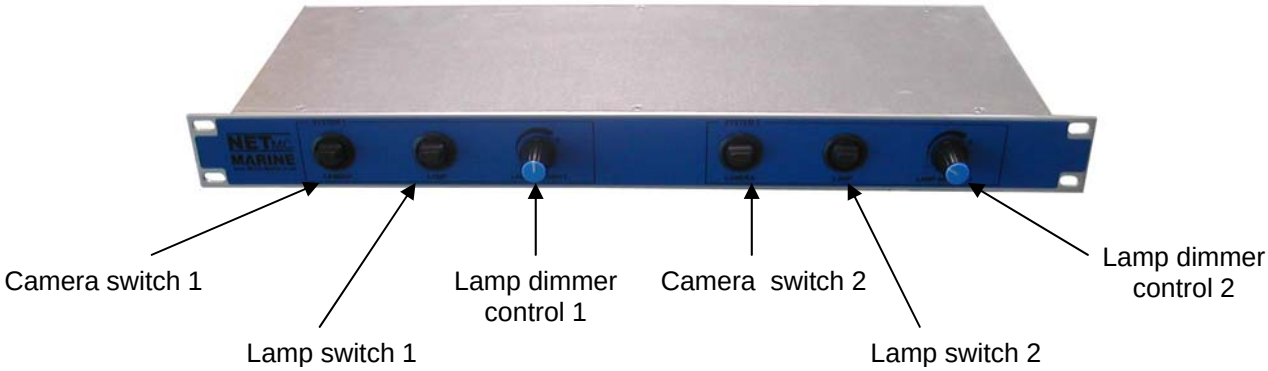
Camera signal should be via co-ax unless unit has been ordered specifically with twisted pair line drivers – this is indicated on the product bar code.

THIS EQUIPMENT MUST BE EARTHED.

3. *videoPWR* dual - rackmount version

3.2 Hardware Description and Connections

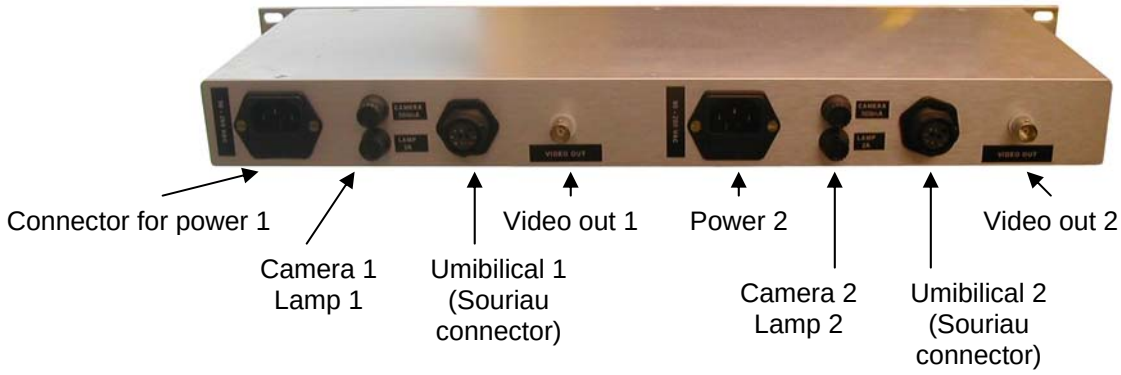
Front of the unit



When switching on, the dimmer control knob should always be set at its minimum. This prevents damage to any connected lamp and prevents inrush surges which might happen if no lamp is connected - which may blow fuses.

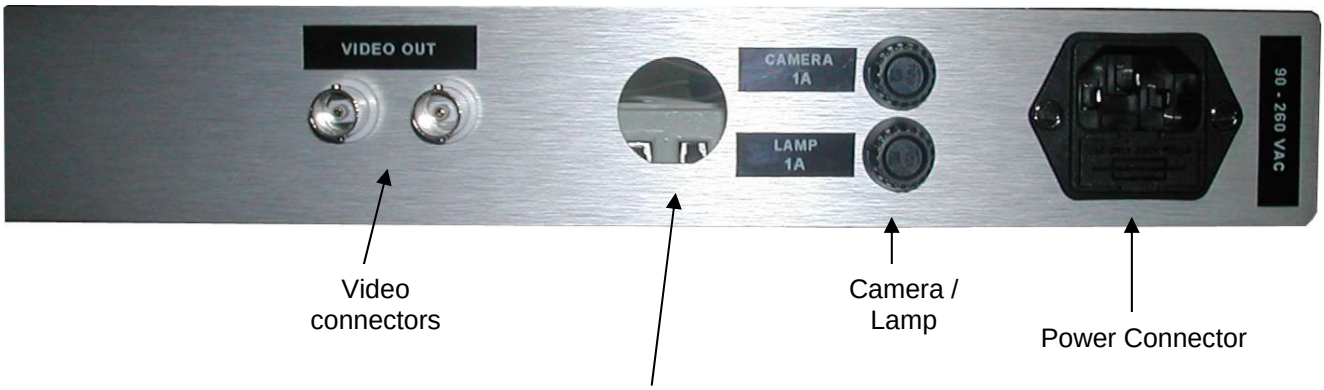
Back of the unit

Example - Dual channel ***videoPWR*** to work with Novasub cameras/lamps



Example with Amphenol connector (see Appendix 2)

Example single channel ***videoPWR***, to work with Bowtech cameras L3C-550-A4, lamps LED-800-13, no umbilical connector requested:



Screw terminal instead of umbilical connector. See Appendix 4

3.3 Electrical:

The units operate from 90 to 260 VAC input.

Lamp output 0-24v DC variable.

Camera output typically 24v DC

Camera signal should be via co-ax unless unit has been ordered specifically with twisted pair line drivers – this is indicated on the product bar code.

THIS EQUIPMENT MUST BE EARTHED.

3.4 Video enhancement

Video enhancement is an optional addition to a videoPWR unit, which must be ordered at the time of purchase.

This feature uses Lyyn Visibility Enhancement Technology to improve visibility underwater by up to 60%.

Please see Appendix 5 for more details on this feature.

4. How to contact NETmc Marine Support

Should any problems occur with your ***videoPWR*** that are not addressed by this manual please contact our Support Team:

Email: support@netmcmarine.co.uk.

Tel: +44 1771 644001

Should your call be outside office hours, please leave a message on the answering machine, which will be forwarded to one of the support engineers. Although we cannot guarantee 24/7 availability, we endeavour to respond as quickly as possible to any query – regardless of when the support call is made.

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notes:

1. Whilst every effort has been made to ensure that the information contained in this manual is accurate, no liability can be accepted for errors and omissions.

2. Should this product be modified in any way by anyone other than a qualified NETmc Marine employee, then NETmc Marine cannot be held liable for any consequences.

Appendix 1

Technical Specifications

Power Requirements	110-240 Vac, 50-60 Hz
Operating Temperature	10 - 35 Degrees
Non-operating Temperature	-10 - 60 Degrees
Operating Humidity	5-95% RH non-condensing
Non-operating Humidity	5-95% RH non-condensing
Operating Shock	65G, 2ms
Non-operating Shock	250G, 2ms
Operating Altitude	-305m – 3,050m
Non-operating Altitude	-305m – 12.200m
Operating Vibration	Linear 20-300Hz, 0.75G (0 to peak) Random 10-300 Hz, 0.004g2/Hz
Non-operating Vibration	Low frequency 5-20 Hz, 0.195 inches (double amplitude) High frequency 10-300Hz, 5.0G (0 to peak)
Dimensions - rackmount	482(W) x 41(H) x 155(D) (1U case)
Weight - rackmount	1.5 kg
Dimensions – peli version	270(L) x 246(W) x 174(H) (1300 Pelicase)
Weight – peli version	2.5 kg

Storage and shipping

After overnight road freight the units should be left at room temperature for 24 hours before powering on.

After air freighting the units should be left at room temperature for 48 hours before powering on.

Appendix 2

Wiring Pin-Out of Souriau Umbilical Connector

Item	Plug	Umbilical		Camera connector			Wire	Camera	Light connector			Light	Comms connector		
Brand	Souriau	Novasub		Birns / Subconn			-	Novasub	Birns / Subconn			Novasub	Birns / Subconn		
Type	UTS6JC1210P	DLR-3P25-2C100		MCIL4F			0.25 mm²	-	MCIL2F			-	IL2F		
GND Light	A	Black							Blue	Black	Pin 1	GND			
Vcc Light	B	White							Brown	White	Pin 2	Vcc			
GND Cam	C	Black	TSP2	Black		Pin 1	Black	GND							
Vcc Cam	D	Red		Green/yellow	White	Pin 2	Red	Vcc							
Video +	E	Green		Brown	Red	Pin 3	Green	Video +							
Video -	F	Black	TSP1	Blue	Green	Pin 4	Yellow	Video -							
Video shield	G	Drain													
Comms -	H	Black											Blue	Black	Pin 1
Comms +	J	White	TSP3										Brown	White	Pin 2
Comms shield	K	Drain													

Spare parts:

Umbilical: Novasub. Type DLR-3P25-2C100
Umbilical Plug: Brand Souriau, type UTS6JC1210P, RS part 191-428
Crimp pin : Souriau SM20WL3S25UK RS 233-2703

Appendix 3

Wiring Pin-Out of Amphenol Umbilical Connector

Amphenol part C01630H00610010
RS part: 540-1688

Protective cap: RS part 452-085

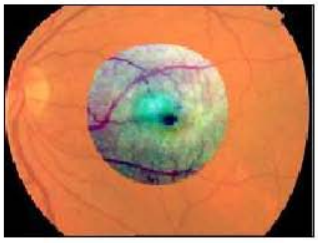
Pin	
1	Lamp +
2	Lamp -
3	N/C
4	Video Signal
5	Video Ground
6	N/C
7	Video Power + 12v

Appendix 4

Screw terminal wiring (where applicable)

Appendix 5

LYYN Visiblity Enhancement Technology



About LYYN

LYYN is an image technology company with its roots from Lund University, Sweden. Behind the company is a group of researchers with extensive experience within image research in the medical area and entrepreneurs from the IT industry. Among the founders are Professor Olle Holm, M.D., Ph.D. and Anders Holm, DrTech.

LYYN™ V.E.T.

The patent pending LYYN™ V.E.T. (Visibility Enhancement Technology) is a result of many years of research in ophthalmology. Based on the understanding of how the human eye and brain works LYYN has developed unique image enhancement technologies that clear the image from physical disturbances.

The true power of this technology is that not only pictures but also streaming video can be enhanced, in real-time. Implemented in areas as different as, airport and tunnel surveillance, eye and ear medicine and offshore engineering, it improves visibility in new or existing systems by as much as 60%. You have to see it to believe it!

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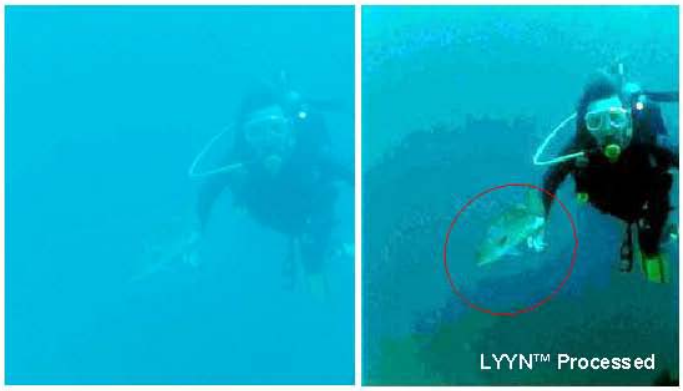
We have a clearer vision

"The Big Blue" is not just blue anymore



... where did that fish come from?

The pictures speak for themselves. In any situation where you need to see clearly under water, you need LYYN™ V.E.T.

But this is just a still picture that we have enhanced. The true power is that this can be done in real-time in a live video stream. This could have been the feed from the camera from an ROV (Remote Operated Vehicle) like the Swedish Sjöugglan ("sea owl"). And the stream could have been either digital or analogue. What would this mean to under water salvage operations, under water archeology or just the every day scuba diving enthusiast?

Just imagine.

There are hundreds of thousands of miles of under water cables and pipe-lines, all having to be maintained from specially equipped ships. What would it mean if they could work faster? Maybe twice as fast?

It is not magic, it is LYYN™ Visibility Enhancer that increases visibility by 60%.

Want to see what we see?

Enhancing Visibility in Real-time!

The technology

It is called LYYN (V.E.T) Visibility Enhancement Technology. Visibility is enhanced in real-time in fog, dust, lowlight, snow, smoke, subsea, etc.

LYYN works on images and video from normal color cameras, but can also be used in processing saved material.

Imagine the possibilities.

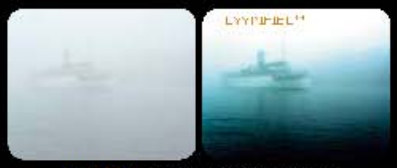
The pictures below are just still pictures that we have enhanced. The true power of LYYN is that this can be done in real-time in a live video stream, digital or analogue. This could have been the feed from a surveillance camera in a video security system. Air traffic control, for instance, would have a better view of the airfield. They might even see that a plane is going down the wrong way in the fog...

It is not magic.

It is mathematics, based on the knowledge of how the human brain interpret information from the eyes.

Low cost.

As LYYN can be integrated into existing systems as a "turbo charger", no expensive upgrade of complete systems is required.



FOG & HAZE – LYYN gives you a clearer vision

DUST – LYYN gives you a clearer vision

LOW LIGHT – LYYN gives you a clearer vision

SNOW – LYYN gives you a clearer vision

SMOKE – LYYN gives you a clearer vision

SUBSEA – LYYN gives you a clearer vision

LYYN®
we give you a clearer vision

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3.5. Keypad functionality

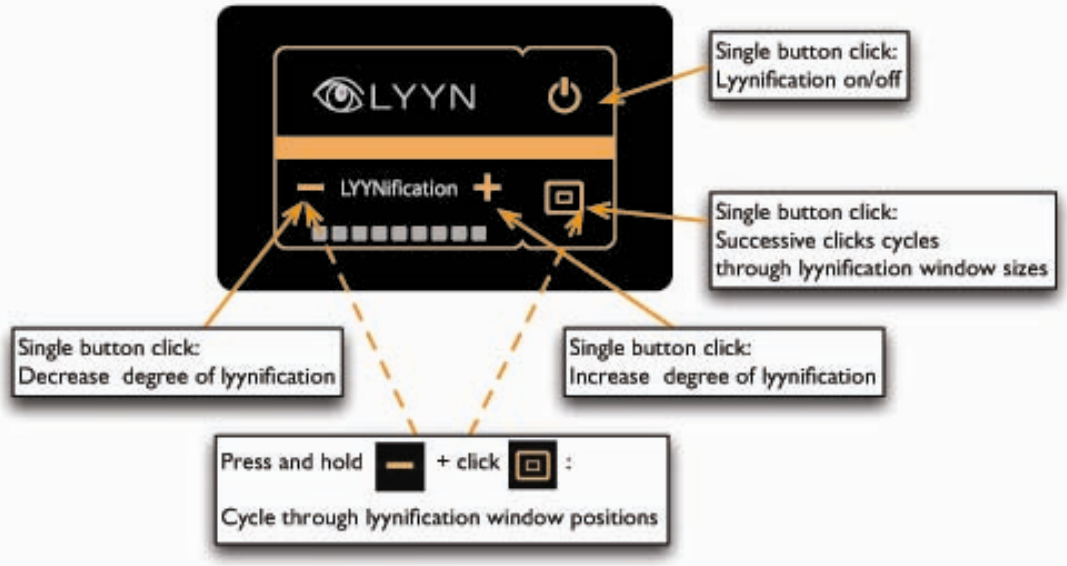

Figure 5. Keypad functionality

Table 2. Keypad functionality

Button	Function
	Lyynification on/off. Lyynification OFF = analog bypass
	Successive clicks cycle through lyynification windo sizes
	Click to decrease degree of lyynification
	Click to increase degree of lyynification

Button	Function
Press and hold + click	Cycle through lyynification window positions